

Title: Let's Go to the Movies!

Brief Overview:

This learning unit involves collecting, organizing, interpreting, analyzing, and displaying data. The students will use the collected data to interpret, analyze, and solve an authentic situation. The students will demonstrate the basic concepts of data analysis.

Links to NCTM Standards:

- **Mathematics as Problem Solving**

The students will demonstrate their ability to solve problems in mathematics including problems with open ended answers and problems which are solved in a cooperative atmosphere.

- **Mathematics as Communication**

The students will demonstrate their ability to communicate mathematically. They will read, write, and discuss mathematics with language and the signs, symbols, and terms of the discipline.

- **Mathematics as Reasoning**

Students will demonstrate their ability to reason mathematically. They will make conjectures, gather evidence, and build arguments.

- **Mathematical Connections**

Students will demonstrate their ability to connect mathematical topics within the discipline and with other disciplines.

- **Estimation**

Students will demonstrate their ability to apply estimation strategies in problem solving.

- **Statistics and Probability**

Students will demonstrate their ability to collect, organize, and display data and will interpret information obtained from displays. They will write reports based on statistical information.

Grade/Level:

Grades: Upper 3 and 4-5

Duration:

This unit will take approximately 3-4 class periods (50 minutes each).

Prerequisite Knowledge:

Students should have working knowledge of the following skills (for example):

- Estimating
- Graphing
- Number sense

Objectives:

Students will:

- collect, organize, interpret, and analyze data.
- work cooperatively in groups(pairs).
- identify possible solutions for a authentic situation.
- construct graphs using collected data.
- compare data.
- communicate mathematical ideas through persuasive writing.
- classify data.

Materials/Resources/Printed Materials:

- Student Sheets #1-7
- Teacher Sheets #1 and 2
- Large graph paper
- Crayon

Development/Procedures:

Activity 1:

- The students will read the poem, “*Let’s Go To The Movies*” and complete the web about their favorite movies (Student Sheets #1 and 2).
- The students will work in cooperative groups to classify the information from their webs into types of movies (Student Sheet #3).
- The students will use the data from Student Sheet #3 to construct a group bar graph on large graph paper displaying favorite types of movies.
- The students will read the vignette which the teacher will have displayed on the overhead (Teacher Sheet #1).
- The teacher will display the groups’ bar graphs for students to compare.
- The students will interpret and analyze the graphs in order to write a paragraph indicating the type of movie that should be made next.


Activity 2:

- The teacher will discuss the importance of collecting additional data to make a more informed decision.
- The students will be divided into groups to conduct the “favorite movie type” survey using other classes (Student Sheet #4).
- The students will return with their data and each groups’ data will be combined to construct one bar graph.
- The students will interpret and analyze the bar graph and compare it to the previous days graphs.
- The students will reevaluate their previous paragraph in order to make it more persuasive. The students may add additional information or change their previous opinion.

Activity 3:

- The students will brainstorm other variables that affect the type of movie that a movie company might choose to develop.

- The teacher will focus discussion on the amount of money a movie makes. The teacher will hand out an organized list of the top money making movies (Student Sheet #5).
- The students will classify the list of movies using the color key on the student sheet.
- **Some movies because of various attributes will fit into multiple categories. Demonstrate to students how to divide the circle symbol on to show two or three categories. The following circle represents two categories for a movie.

Example: 

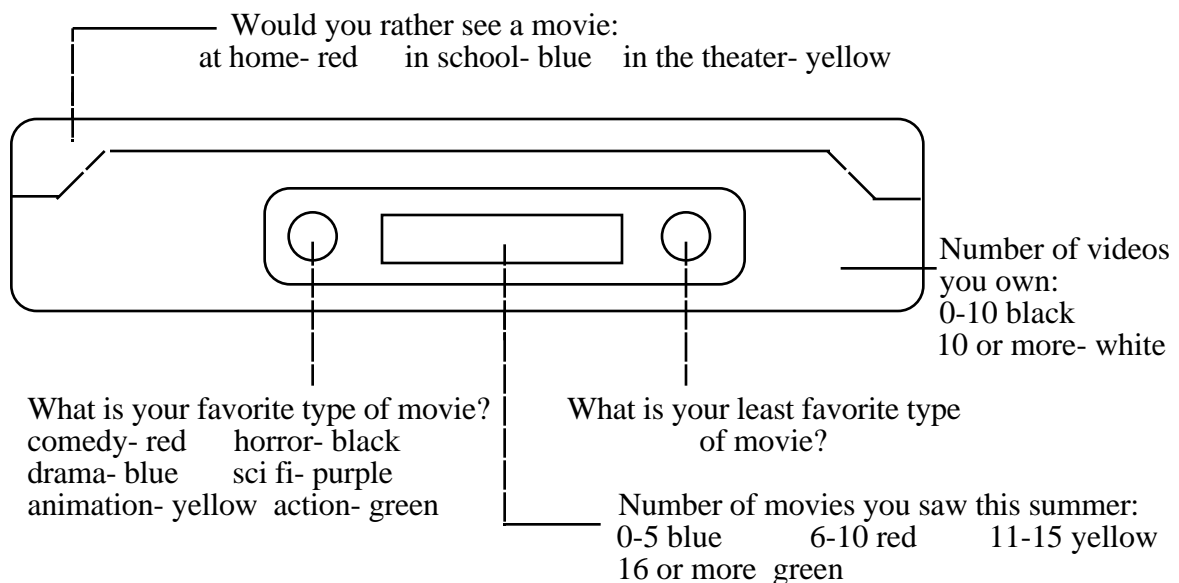
- The students will work in pairs to construct a number line plot using Student Sheet #6.
- The student will interpret and analyze the graph in order to make a more informed decision regarding the next movie.

Performance Assessment:

The students will review and complete the writing to persuade vignette on Student Sheet #7. The scoring rubric is found on Teacher Sheet #2.

Extension/Follow Up:

- The students will construct a stem and leaf plot using the running times of the top twenty-five movies in the USA. Using the stem and leaf plot, the students can find the median and mode of movie running times.
- The students will use the following running times in order to change minutes into hours and minutes:
195, 125, 115, 127, 142, 93, 134, 142, 124, 105, 124, 126, 98, 115, 113, 129, 107, 120, 128, 94, 111, 222, 127, 81, 83.
- The students will construct a glyph displaying information about movies.



- The students will decide on a type of movie for the writing of a script. The students will write an original movie (story) for that particular category.
- The students will create a poster advertising their movie.

Authors:

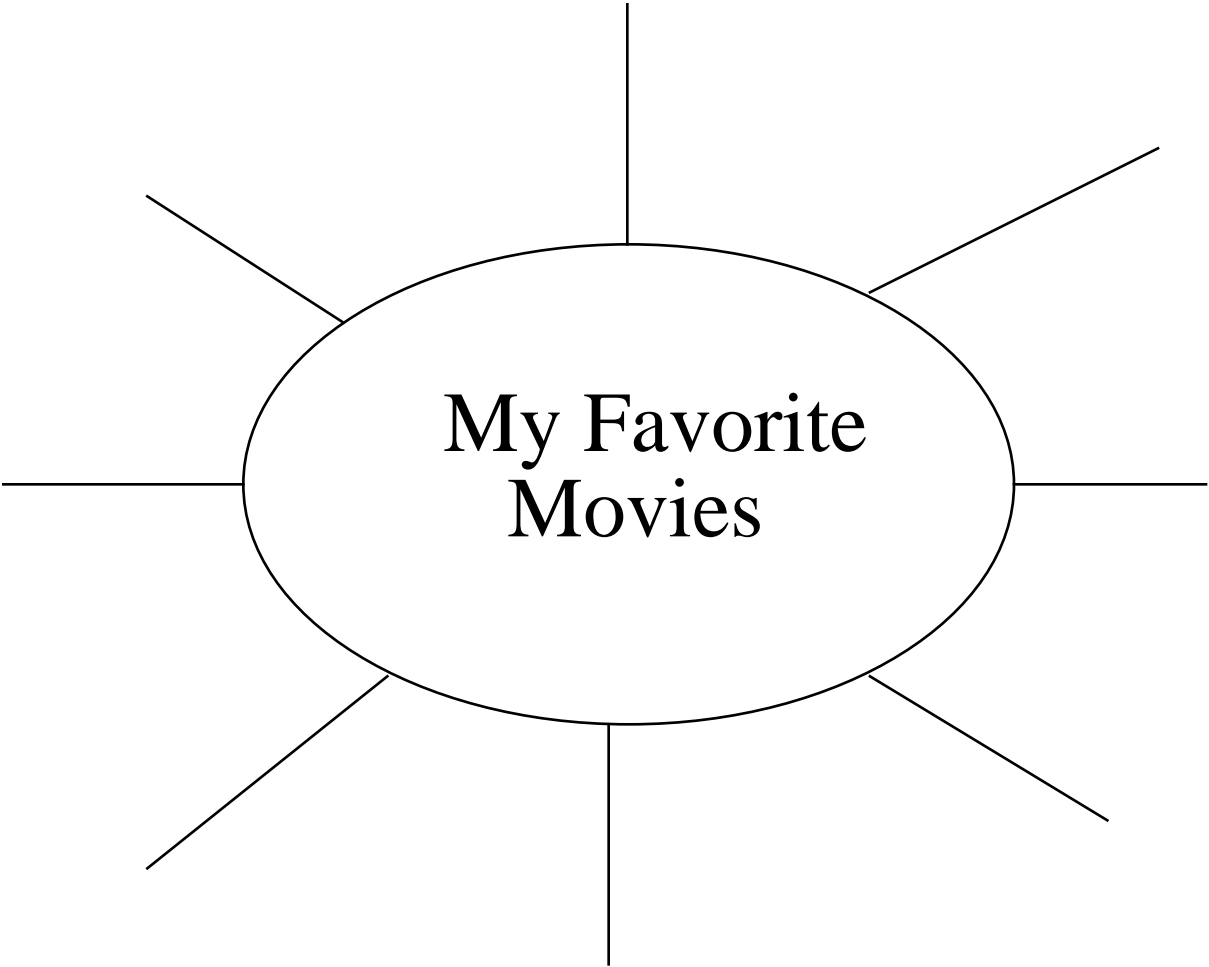
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“Let’s Go To The Movies”
by Stacy Berman

Going to a movie can be such fun,
Especially if you’re with someone.
Funny movies are a blast,
They are sometimes over way too fast.
Some are sad, but that’s okay,
I’ll save those for a rainy day.
Scary movies can be a fright,
Let’s not see those at night.
Cartoons are for kids but I don’t mind,
I usually enjoy those silly kind.
Action and adventure keep me on the edge of my seat.
I never want to miss a beat.
I like movies, every type,
But sometimes they get too much hype.
At home, in the theater or on video,
Movies are cool, don’t you know.
Watching a movie is fun any time,
Tell me your favorite and I’ll tell you mine!!

Directions: On the following page make a web of your favorite movies.



Tally Sheet

Directions: Using the webs you have completed, classify the movies into the categories below. Tally the number of movies next to each category.

Movie types

Tally Column

Comedy	
Action/Adventure	
Science Fiction	
Drama	
Animation	
Horror	

***When you have completed tallying up the number of movies in each category, construct a bar graph with your group on a large piece of graph paper to display your results.

Movie Survey

Directions: With your partner, visit one other classroom. Ask the students to tell you which type of movie is their favorite. Tally the results below.

Movie type	Number of Students
Comedy	
Action/Adventure	
Science Fiction	
Drama	
Animation	
Horror	

Directions: Classify the types of movies into categories using the color key.

Color Key

drama-blue	comedy-red	horror-black
animation-yellow	action/adventure-green	science fiction-purple

Top Movies of All Time

Movie Title	Money Earned (in millions)	Category (using circles)
Titanic	\$590	○
Star Wars	\$461	
E.T.	\$400	
Jurassic Park	\$357	
Forrest Gump	\$330	
The Lion King	\$313	
Return of the Jedi	\$307	
Independence Day	\$306	
The Empire Strikes Back	\$290	
Home Alone	\$285	
Jaws	\$260	
Batman	\$251	
Men in Black	\$250	
Raiders of the Lost Ark	\$242	
Twister	\$242	
The Lost World: Jurassic Park	\$229	
Ghostbusters	\$221	
Mrs. Doubtfire	\$219	
Ghost	\$218	
Aladdin	\$217	
Back to the Future	\$211	
Gone With the Wind	\$199	
Indiana Jones and the Last Crusade	\$197	
Toy Story	\$192	
Snow White and the Seven Dwarfs	\$189	
Dances With Wolves	\$184	
Batman Forever	\$184	
Liar Liar	\$181	
Indiana Jones, the Temple of Doom	\$180	
Top Gun	\$177	

Source: (www.like.it/vertigo/topmovies.html) July 1998

Directions: Construct a number line plot using the data from the “top movies” sheet. Place the correct colored circle (depending on the category) on the top of the dollar amount that movie made. Don’t forget labels.

(title)

0 50 100 150 200 250 300 350 400 450 500 550 600

Color Key:

Comedy- red

Drama- blue

Animation- yellow

Action/ Adventure- green

Science Fiction- purple

Horror- black

Vignette for Performance Assessment

Mr. Blockbuster, from a very high powered movie company, needs your help. His company is about to create another movie. Of course they want their movie to be successful. Mr. Blockbuster has chosen our class to help him determine which type of movie would be the best one to make. You will be involved in collecting data so that you can persuade Mr. Blockbuster to create a hit movie. After collecting data from various sources, you will be ready to give Mr. Blockbuster an informed decision.

Write a persuasive letter to Mr. Blockbuster helping him decide what type of movie he should create. Be sure to support your reasons with examples from the data we collected. You want to persuade him to pick a certain type of movie. You will also want to include the type of movie that they should not create. Don't forget to give him good reasons using the data. I'm sure Mr. Blockbuster will really appreciate your help.

Vignette

Mr. Blockbuster, from a very high powered movie company, needs your help. His company is about to create another movie. Of course they want their movie to be successful. Mr. Blockbuster has chosen our class to help him determine which type of movie would be the best one to make. You will be involved in collecting data so that you can persuade Mr. Blockbuster to create a hit movie. After collecting data from various sources, you will be ready to give Mr. Blockbuster an informed decision.

Scoring Rubric for Performance Assessment

4 Points

- The student chose reasonable answers.
- The student used at least three reasons from the data to support each opinion.
- The student's written work is consistently neat, clear, persuasive, and organized.
- The student consistently used proper math vocabulary.

3 Points

- The student chose reasonable answers.
- The student used at least two reasons from the data to support each opinion.
- The student's written work is usually neat, clear, persuasive, and organized.
- The student usually used proper math vocabulary.

2 Points

- The student chose a relatively reasonable answer.
- The student used at least one reason from the data to support each opinion.
- The student's written work is not neat, clear, persuasive, or organized.
- The student does not use proper math vocabulary.

1 Points

- The student chose an unreasonable answer.
- The student did not use data to support each opinion.
- The student's written work is not neat, clear, persuasive, or organized.
- The student does not use proper math vocabulary.